

CLAIMS

1. A method for controlling the transfer of a fluid substance, and/or a substance
5 comprised in a fluid substance, from a first cavity to a second cavity, comprising the steps of:

a) introducing into the first cavity a fluid substance whose transfer is to be controlled,
and/or a substance whose transfer is to be controlled comprised in the fluid substance, and
holding the fluid substance and/or the substance comprised in the fluid substance in the first
cavity, wherein the first cavity is connected to the second cavity by an intervening cavity, and
10 the intervening cavity is provided with a separation medium which prevents transfer of the
fluid substance and/or the substance comprised in the fluid substance into the intervening
cavity;

b) replacing the separation medium in the intervening cavity with a connection
medium that allows transfer of the fluid substance and/or the substance comprised in the fluid
15 substance into the intervening cavity; and

c) transferring the fluid substance and/or the substance comprised in the fluid
substance from the first cavity to the second cavity via the intervening cavity.

2. The method of claim 1, wherein one of the following steps (1) to (3) is also carried out
20 in the first and/or second cavity:

(1) separating the fluid substance and/or the substance comprised in the fluid
substance;

(2) reacting the fluid substance and/or the substance comprised in the fluid substance;
and

25 (3) detecting the fluid substance and/or the substance comprised in the fluid
substance.

3. The method of claim 2, wherein the separation is carried out by electrophoresis.

30 4. The method of claim 1, wherein the first cavity, the second cavity, and the intervening
cavity comprise a groove or tube configuration; the fluid substance is a liquid; the separation

medium is a gas; and the connection medium is a liquid.

5. The method of claim 4, wherein the second cavity comprises the form of at least one groove or tube that branches from the first cavity.

6. A device for controlling the transfer of a fluid substance and/or a substance comprised in a fluid substance, comprising:

a) a first cavity for holding the fluid substance;
b) a second cavity for holding the fluid substance; and
c) an intervening cavity for connecting the first cavity and the second cavity, for holding a separation medium which prevents transfer of the fluid substance and/or the substance comprised in the fluid substance from the first cavity;
wherein the separation medium can be replaced with a connection medium, and the introduction of the connection medium to the intervening cavity enables transfer of the fluid substance and/or the substance comprised in the fluid substance retained in the first cavity, to the intervening cavity and the second cavity.

7. The device of claim 6, wherein the first cavity and/or the second cavity comprises at least one of the following mechanisms (1) to (3):

(1) a mechanism for separating the fluid substance and/or the substance comprised in the fluid substance;
(2) a mechanism for reacting the fluid substance and/or the substance comprised in the fluid substance; and
(3) a mechanism for detecting the fluid substance and/or the substance comprised in the fluid substance.

8. A two-dimensional electrophoretic device comprising;

a) a first cavity for holding an electrophoretic medium;
b) a second cavity for holding an electrophoretic medium; and
c) an intervening cavity for connecting the first cavity and the second cavity, for holding a separation medium which prevents transfer of the substance to be electrophoresed

from the first electrophoretic medium to the second electrophoretic medium;
wherein the separation medium can be replaced with a connection medium, and the
introduction of the connection medium into the intervening cavity enables transfer of the
substance to be electrophoresed in the electrophoretic medium retained in the first cavity, to
the intervening cavity and the second cavity.

9. The two-dimensional electrophoretic device of claim 8, wherein the second cavity
comprises the form of at least one groove or tube that branches from the first cavity.

10. A method for conducting two-dimensional electrophoresis, comprising the steps of:
a) conducting electrophoresis in the first cavity of the electrophoretic device of claim
8;
b) introducing a connection medium to an intervening cavity after step a); and
c) conducting electrophoresis of a substance to be electrophoresed in a second cavity.